

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of:)	
)	
Grant E. DUBOIS et al.)	Group Art Unit: 1761
)	
Application No.: 09/838,809)	Examiner: Carolyn A. PADEN
)	
Filed: April 20, 2001)	Confirmation No.: 3526
)	
For: NON-CALORIC FROZEN)	
CARBONATED BEVERAGE)	

MAIL STOP APPEAL BRIEF—PATENTS

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Commissioner for Patents
P.O. Box 1450
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REPLY BRIEF UNDER 37 C.F.R. § 41.41

Further to the Appeal Brief filed January 5, 2009 (Appeal Brief), Amended Appeal Brief filed August 21, 2009 (Amended Appeal Brief), and the Examiner's Answer dated September 8, 2009 (Examiner's Answer), Appellant submits this Reply Brief under 37 C.F.R. § 41.41 to maintain this appeal and in support of the patentability of the pending claims in this application. Appellant notes that a Request for Oral Hearing Under 37 C.F.R. § 41.47 is submitted concurrently with this Reply Brief.

I. Status of Claims

Claims 13, 14, 16, 17, 19, 20, 23, 26–28, 31, 34–37, 40, 42–43, 54–90, 97–102, and 106–128 are pending in this application. Claims 1–12, 15, 18, 21, 22, 24–25, 29–30, 32–33, 38–39, 41, 44–53, 91–96, and 103–105 have been canceled. Claims 13, 14, 16, 17, 19, 20, 23, 26–28, 31, 34–37, 40, 42–43, 54–90, 97–102, 106–107 and 110 have been amended. No claims have been added herein. Claims 13, 14, 16, 17, 19, 20, 23, 26–28, 31, 34–37, 40, 42, 43, 54–90, 97–102, and 106–128¹ have been finally rejected and are appealed.

¹ Claim 128 is newly rejected by the Examiner. *Examiner's Answer* at 3.

II. Grounds of Rejection to Be Reviewed on Appeal

The Examiner's Answer withdrew the rejection of claims 31, 34–37, 40, 42, 43, 54, 108–12, and 115–26 under 35 U.S.C. § 102(e) as anticipated by U.S. Patent Publication No. 2002/0136803 to *Stefandl* in view of U.S. Patent No. 5,380,541 to *Beyts* and further in view of the admitted state of the prior art at paragraph [002] of Appellant's specification or U.S. Patent No. 5,806,550 to *Frank*. The Examiner's Answer newly rejected those claims under 35 U.S.C. § 103(a) as obvious over U.S. Patent Publication No. 2002/0126803 to *Stefandl* in view of U.S. Patent No. 5,380,541 to *Beyts* in further view of the admitted state of the prior art at ¶ [002] of Appellant's specification or U.S. Patent No. 5,806,550 to *Frank*. The Examiner's Answer also issued a new rejection of claim 128 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 3,826,829 to *Marulich* in view of U.S. Patent No. 5,380,541 to *Beyts*. With those changes, Section VI of the Amended Appeal Brief should be amended to reflect the following five issues or grounds of rejection for review on appeal:

1. Whether claims 31, 34–37, 40, 42, 43, 54, 108–12, and 115–26 are obvious under 35 U.S.C. § 103(a) over U.S. Patent Publication No. 2002/0136803 to *Stefandl* in view of U.S. Patent No. 5,380,541 to *Beyts* and further in view of the admitted state of the prior art at paragraph [002] of Appellant's specification or U.S. Patent No. 5,806,550 to *Frank*;
2. Whether claims 13, 14, 20, 23, 28, 31, 37, 54–90 and 106–128 are obvious under 35 U.S.C. § 103(a) over U.S. Patent No. 3,826,829 to *Marulich* in view of U.S. Patent No. 5,380,541 to *Beyts*;
3. Whether dependent claims 16, 17, 26, 34, 40, 42, and 43 are obvious under 35 U.S.C. § 103(a) over U.S. Patent No. 3,826,829 to *Marulich* in view of U.S. Patent No. 5,380,541 to *Beyts*, in further view of U.S. Patent No. 4,452,824 to *Cole*;

4. Whether dependent claims 19, 27, and 35 are obvious under 35 U.S.C. § 103(a) over U.S. Patent No. 3,826,829 to *Marulich* in view of U.S. Patent No. 5,380,541 to *Beyts* and further in view of U.S. Patent No. 4,452,824 to *Cole*, and further in view of U.S. Patent No. 6,066,345 to *de Cock*; and,
5. Whether dependent claims 97–102 are obvious under 35 U.S.C. § 103(a) over U.S. Patent No. 3,826,829 to *Marulich* in view of U.S. Patent No. 5,380,541 to *Beyts*, further in view of U.S. Patent No. 4,452,824 to *Cole*, and further in view of U.S. Patent No. 6,432,464 to *Andersen*.

The grouping of claims presented in Section VI of the Amended Appeal Brief remains unchanged, despite the new grounds of rejection presented in the Examiner's Answer.

III. Responses to and Comments on the Examiner's Answer

Commercial mechanical frozen beverage dispensers are known in the art. Reduced-calorie beverages are known in the art. Those facts are undisputed. One would think it would be obvious to use a reduced-calorie beverage syrup in a mechanical dispenser to create a reduced-calorie frozen beverage; however, one who understands the unique chemical and thermodynamic barriers to creating such a beverage in the absence of enough sugar to provide the correct freezing profile knows it is not obvious. Every rejection pending in this Appeal is predicated (under 35 U.S.C. § 103(a)) on the Examiner's inability or unwillingness to recognize those chemical and thermodynamic barriers that—before the present application—prevented making the unobvious reduced-calorie frozen dispenser beverages of the present application.

The common theme in the Examiner's error stems from her unsupportable contention that one could simply take beverages of the prior art (adding various sugar substitutes and removing various sugars at will), and put them into a mechanical dispenser to dispense them as reduced-calorie frozen beverages. The Examiner's contention ignores the inherent chemical and thermodynamic challenges of the process; in short, the chemical compositions of reduced-calorie beverages in the prior art possessed an inherent chemical and thermodynamic freezing point profile causing them to over-freeze in a mechanical dispenser, turning them into indispensible blocks of ice. This over-freezing is caused by the lack of proper ice crystal formation, and proper ice crystal formation is a result of the composition, including the sugar content of the beverage. Accordingly, this problem is unique to reduced-calorie and non-caloric beverages. A full-calorie beverage, in contrast, has adequate sugar content to create an acceptable freezing point profile and produce ice crystal formation necessary to make a dispensable frozen beverage.

Thus, one of ordinary skill in the art at the time of the present invention readily understood that the particular content of a beverage—including the particular amounts and concentrations of sugars and/or sugar substitutes (e.g., high-potency non-caloric sweeteners)—would directly impact the ability of that beverage to freeze appropriately into a dispensable frozen beverage. The present inventors, however, recognized that a balance of certain freezing point depressants could allow for the proper dispensing of reduced-calorie or non-caloric, slushy beverages² from standard commercial mechanical beverage dispenser equipment. With this context in mind, the Examiner's continued misunderstandings (as exhibited throughout the Examiner's Answer) can be more fully explored.

A. Response to the Examiner's Continued Misunderstanding of Commercial Mechanical Frozen Beverage Dispensers

1. *The Prior Art for Commercial Mechanical Frozen Beverage Dispensers*

Commercial mechanical frozen beverage dispensers were well known in the prior art. *See, e.g.*, U.S. Patent No. 4,964,542 to *Smith* ("Frozen Beverage Dispenser"); U.S. Patent No. 5,706,661 to *Frank* ("Apparatus and Method for Controlling the Consistency and Quality of a Frozen Carbonated Beverage Product"); U.S. Patent No. 5,806,550 to *Frank* ("Method and Apparatus for Monitoring and Controlling the Amount of Liquid in a Mixing Chamber"); *see also* Present Application at [002], [003], and [032]. Commercial mechanical frozen beverage dispensers at the time of the invention could, for instance, produce frozen beverages by mixing several ingredients (including syrup and water) in a mixing chamber. Once in the mixing chamber, the ingredient mixture was exposed to a refrigeration source to methodically cool the

² As the sugar content of a beverage syrup decreases, it becomes even more difficult to make a dispensable frozen beverage. Thus, while reduced-calorie frozen dispenser beverages are difficult to create, non-caloric frozen dispenser beverages are even more difficult to create.

mixture. As the mixture was exposed to the refrigeration source, slight amounts of moist slush would accumulate on the side of the mixing chamber, and an auger (device containing a rotating helical shaft), for instance, would then move the accumulating slush so that more slush may be made. The resulting slush mixture would then continually circulate in the storage area (either by a circular auger or plastic mixing paddles) to retain the texture of the ice mixture at a temperature that would not allow additional freezing or mixing. The resulting slush mixture can be dispensed for the consumer in a ready-to-drink form.

Accordingly, the commercial mechanical frozen beverage dispensers of the prior art were not merely holding devices for a slush to simply pass-through. Rather, the dispenser plays an integral role in converting the fluid ingredients (such as syrup, water, and optionally carbonation) into the dispensable frozen beverage. Further, because of the way that the slush is formed from the beverage syrup in relation to the refrigeration source, it is imperative to consider the unique chemical and thermodynamic properties of the beverage syrup itself when determining whether the resulting mixture is capable of the type of freezing that allows dispensation through a commercial mechanical dispenser. Each mixture will perform differently in a mechanical dispenser, depending on its properties; full-calorie beverages easily freeze into dispensable frozen beverages³ while reduced-calorie and non-caloric beverages often over-freeze into blocks or ice crystals that are too large for dispensation. The Examiner continues to ignore this reality in her rejections, as is evidenced in her continued misunderstanding and reliance on *Stefandl* and *Marulich*, as discussed in detail below.

³ Full-calorie frozen beverages were well known in the art at the time of the present inventions. See, e.g., Present Application at [002] and [004]–[006].

2. The Examiner's Misunderstanding of *Stefandl*

The Examiner continues to misunderstand *Stefandl* in the Examiner's Answer. *Stefandl* is directed toward a full-calorie home-freezer product, and claims that a certain mixture of ingredients, which freezes completely in a bottle when placed in a home freezer, will defrost to form a slushy drink for consumption. The Examiner alleges that "[t]he dispenser, in this case, is the bottle in the freezer." Examiner's Answer at 6. The Examiner then acknowledges three key differences between *Stefandl* and the pending claims: (1) *Stefandl* does not teach a reduced-calorie or non-caloric composition (*see* Examiner's Answer at 5); (2) *Stefandl* does not recite the inclusion of high-intensity sweeteners (*see id.* at 6); and (3) *Stefandl* does not recite the commercial mechanical beverage dispenser, but instead recites a home dispenser (*see id.* at 7). The Examiner points to Sample D of *Stefandl* a dozen times in the Examiner's Answer as the allegedly exemplary slush product to show the obviousness of the present claims.

Sample D includes 98 grams of glucose (a carbohydrate, full-calorie sugar, readily known in the art to affect freezing point characteristics), 5 grams of sorbitol, and 30mL of glycerine, dissolved in 14 fluid ounces of water. *Stefandl* at [0053]. Sample D, with its high sugar content, illustrates a full-calorie beverage. Full-calorie beverages, such as the one disclosed in Sample D, are known to have an appropriate freezing profile and ice crystal formation to produce frozen beverages that are dispensable from commercial mechanical dispensers. *See* Present Application at [002] ("Full-calorie frozen carbonated beverages (FCBs) are known in the art and have been produced for years."). That *Stefandl*'s Sample D would be expected to work in a commercial mechanical frozen beverage dispenser is unsurprising.

The Examiner further notes that "[a]rtificial sweeteners are contemplated in the product" of *Stefandl*. Examiner's Answer at 5; *see also id.* at 6 (noting that *Stefandl* also fails to recite the

inclusion of high-intensity sweeteners, and adding *Beyts* as a secondary reference in an effort to cure this admitted deficiency). But *Stefandl* clearly teaches that the freezing profile of any beverage composition will depend on the relative amounts of freezing point depressants included in that composition (which may include, depending on the beverage, high-calorie sugars, reduced-calorie high-intensity sweeteners, salts, etc.). The amount and type of freezing point depressants in *Stefandl*'s full-calorie products differ significantly from the reduced-calorie and non-caloric compositions of the pending claims, and those resulting compositions would inherently have different freezing profiles and freezing point characteristics. In fact, *Stefandl*'s disclosure, in Samples A–D, illustrates this inherent property with clarity. *Id.* at [0053]–[0059] (comparing Sample A (glucose in water), Sample B (sorbitol in water), Sample C (glycerine in water), and Sample D (glucose, sorbitol, and glycerine in water), and noting that even with just these few changes in the composition, the freezing profile and slush-making ability were varied). *See id.* at [0047]–[0051] (showing that commercial products such as Gatorade™, PowerAde™, and Pedialyte™, were frozen and then defrosted, resulting in a very different freezing profile and slush-making ability than the compositions of *Stefandl*).⁴ The Examiner improperly ignores those parts of *Stefandl*, assuming that the claimed compositions and those of *Stefandl* have the same freezing point, the same freezing profile, and the same slush-making ability.

⁴ In particular, *Stefandl* highlights the uniqueness of the freezing profile between the beverages in its discussion of the defrosting characteristics of the different samples in the Examples. *Stefandl* at [0051] (noting that after freezing, the Gatorade™, PowerAde™, and Pedialyte™ samples would not turn into a consumable slush while defrosting because they lacked the development of ice crystals, but instead “the solid block became smaller over the time period at room temperature”); [0054]–[0059] (describing the important defrosting characteristics of Samples A–D). The chemical and thermodynamic properties of the different beverages create different freezing profiles, causing the different defrosting characteristics.

The Examiner then alleges that *Stefandl* need not provide a freezing point at all, because the claims only require a “given freezing point” rather than any particular freezing point. Examiner’s Answer at 15. The “given freezing point” recited in the pending claims is in reference to a full-calorie beverage, again highlighting the importance of mimicking the freezing profile of a full-calorie beverage in a composition lacking the same sugar content. Thus, while *Stefandl* need not recite an exact freezing point temperature, it must provide a composition with a “given freezing point” that would allow it to freeze into a slushy in a commercial mechanical dispenser in conformance with the limitations for the “given freezing point” recited in the pending claims. The Examiner failed to point to anything in *Stefandl* to indicate how, with the Examiner’s ad hoc addition of the sweeteners of *Beyts*, the resulting composition would exhibit a freezing profile comparable to a full-calorie beverage as recited in the pending claims.

Given the importance of the freezing profile and the freezing point characteristics of a composition, the differences between the disclosed composition of *Stefandl* (Sample D, for instance) and the current claims is readily apparent. One of ordinary skill in the art at the time of the invention would not have predicted that taking the composition of *Stefandl* (Sample D), removing the high glucose content, and adding the sweeteners of *Beyts*, would result in a composition that could be frozen and dispensed from a commercial mechanical frozen beverage dispenser. Further, in the static context of a home dispenser—such as the home-freezer container in *Stefandl*—the resulting ice crystal formation from such a combination is less important. In a static home-freezer container, improper ice crystal formation can be remedied, for instance, by manually crushing the bag or bottle containing the frozen beverage, which cannot be accomplished in a mechanical dispenser.

This again highlights the importance of considering the entire context of the present inventions. The particular components in a beverage affect that beverage's freezing profile and ability to become a consumable slush, and the qualities of the resulting slush affect the frozen beverage's dispensability. The present inventors recognized the unique, non-obvious combination that allowed the creation of the reduced-calorie and non-caloric frozen dispenser beverages of the present application.

As shown, *Stefandl* fails to teach a low-calorie frozen beverage that is capable of dispensation from a mechanical dispenser, and neither *Beyts* nor *Frank* cures that deficiency. *See generally Beyts* (disclosing high intensity sweeteners); *Frank* (disclosing a mechanical mixer). Accordingly, the Examiner's rejection is improper and should be withdrawn.

3. The Examiner's Misunderstanding of *Marulich*

In analyzing *Stefandl*, the Examiner misunderstood many of the underlying principles of the commercial mechanical frozen beverage dispenser art; the Examiner seemingly operated under the same misapprehensions when applying *Marulich* in the Examiner's Answer. *Marulich* is directed toward a sweetened product, not the reduced-calorie or non-caloric frozen beverages of the present inventions. The Examiner acknowledges that *Marulich*, like *Stefandl*, teaches (1) the production of a full-calorie frozen beverage (2) that does not incorporate high-potency non-caloric sweeteners, and (3) that is designed to be made in a home freezer, not a mechanical dispenser beverage. *See Examiner's Answer* at 8–10. The Examiner notes that *Marulich* contemplates the use of low-calorie sugars as freezing-point depressants, in addition to the use of high-calorie sugars. *Id.* at 11. For at least the same reasons as above, *Marulich* cannot properly support a rejection under 35 U.S.C. § 103(a).

Marulich requires the use of a gum stabilizer, heralding this gum stabilizer as critical to achieving the ice crystal formation and freezing profile necessary for the home-freezer beverage taught. Given the disclosure of *Marulich*, one of ordinary skill in the art at the time of the invention would not have been motivated to remove that heralded gum stabilizer and randomly substitute the sweeteners of *Beyts* to arrive at the present inventions (especially when those sweeteners were not yet known to provide adequate freezing point depression). Appellant pointed out this distinction to the Examiner, highlighting that *Marulich* taught away from the present inventions. Amended Appeal Brief at 34–37. In response, the Examiner improperly dismisses the clear teachings of *Marulich* because “the [present] claims are open to the inclusion of stabilizers.” Examiner’s Answer at 16. Even though the pending claims are open to the possible inclusion of stabilizers, nothing indicates that a gum stabilizer would work in the dynamic commercial mechanical frozen beverage dispenser environment.

In fact, it is highly unlikely that a gum stabilizer could provide a mechanically dispensable beverage as claimed, especially if the sugars taught by *Marulich* were removed and the sweeteners of *Beyts* were added, given the highly varied freezing profiles that result from modifications of the beverage’s ingredients. The Examiner has failed to point to anything in *Marulich* to indicate how, with the Examiner’s ad hoc addition of the sweeteners of *Beyts*, the resulting composition would exhibit a freezing point profile comparable to a full-calorie beverage as recited in the pending claims. Again, it is critical to view the entire context of the present inventions; one of ordinary skill in the art at the time of the invention would not have been motivated to make the many ad hoc modifications to *Marulich* suggested by the Examiner, especially in view of the express teaching away found in *Marulich*. Further, even though *Marulich* teaches the addition of a freezing point depressant, high potency low calorie

sweeteners were not known to provide sufficient freezing point depression at the time of the invention. Accordingly, a skilled artisan would not have contemplated substituting the sweeteners of *Beyts* for the polyhydric alcohols of *Marulich*, as suggested by the Examiner.

For all of the reasons of record and those discussed above, there is no suggestion that the beverage of *Marulich*, even as modified by *Beyts* (disclosing high intensity sweeteners), would be capable of being dispensed from a mechanical mixing dispenser. Since *Marulich*, alone or in combination with *Beyts*, does not teach a beverage capable of being dispensed from a mechanical dispenser, withdrawal of this ground of rejection is respectfully requested.

B. Response to the Examiner's Continued Misapplication of the Declaration of Grant DuBois Under 37 C.F.R. § 1.131

Appellant again notes that the Examiner improperly references the declaration submitted by Appellant from co-inventor Grant DuBois under 37 C.F.R. § 1.131⁵ on July 19, 2004. That declaration was offered and accepted to overcome the rejection over U.S. Patent Application No. 2002/0197376 to *Broz*—not *Stefandl*. Examiner's Answer at 7–8; *see also* Amended Appeal Brief at 33. In the Examiner's Answer, the Examiner continues to erroneously refer to this declaration as insufficient to overcome *Stefandl*, a moot point, given that it was never intended to overcome *Stefandl*.

IV. Conclusion

As discussed above, the Examiner's Answer has not presented any proper case of obviousness of the rejected claims over any of the references of record, even in light of the newly presented rejections. Therefore, Appellant continues to request withdrawal of the outstanding

⁵ This declaration was submitted under 37 C.F.R. § 1.131, not 35 U.S.C. § 1.131 as provided in the Examiner's Answer at page 7. Accordingly, Appellant has corrected this minor typographical error for the Examiner in this Reply.


rejections and the allowance of pending claims 13, 14, 16, 17, 19, 20, 23, 26–28, 31, 34–37, 40, 42–43, 54–90, 97–102, and 106–28.

If there are any fees due that are not enclosed herewith, please charge those fees to our Deposit Account No. 06-0916.

Respectfully submitted,

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Dated: November 9, 2009

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